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"A CASE STUDY IN ECONOMIC DEVELOPMENT:
THE BONNYVILLE AND RED DEER FARMING COMMUNITIES."

by

NEIL M. CAMPBELL

A THESIS
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The undersigned certify that they have read and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "A Case Study in Economic Development: the Bonnyville and Red Deer Farming Communities," submitted by Neil M. Campbell, in partial fulfillment of the requirements for the degree of Master of Science.

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ABSTRACT

Farm families in the Red Deer area enjoyed high levels of living and high net farm incomes in 1964. Their farms were large as measured by gross sales of agricultural products and capital investment. The process of adjustment, consolidation of farms, and out migration of people, has occurred rapidly over the last 30 years.

Some adjustment in the Bonnyville area has taken place, but the resource base of the average farm is still too small to provide high farm incomes and good levels of living. The Bonnyville area had low incomes 30 years ago and have fallen still further behind both relatively and absolutely since 1936. One-fifth of the farms in Bonnyville were low income farms in 1964. Many farmers supplemented their income by engaging in off-farm employment. One-half of their small net family incomes came from transfer payments.

The most evident differences between Bonnyville and Red Deer were the prices of land, total farm capital investment, and the level of economic well being. The higher income farms in the Bonnyville farm community were organized around the livestock enterprise.

Amelioration of incomes and living conditions in Bonnyville will require a greater shift to livestock and still further farm consolidation and out-migration in the future. The resources of the Bonnyville farms may not be sufficient to reduce the incidence of low incomes markedly.

TABLE OF CONTENTS

	Page
Acknowledgements	iii
Abstract	iv
List of Tables	vii
Chapter I	
INTRODUCTION.	1
Objectives	3
Sources of Data.	3
Chapter II	
RURAL POVERTY AND ECONOMIC DEVELOPMENT.	4
Chapter III	
LAND SETTLEMENT AND LOW INCOME FARMERS.	13
Low Income Farmers	20
Farm Capital Value	21
Gross Sales of Agricultural Products	24
Off-Farm Employment.	26
Chapter IV	
FACTORS RELATING TO FARM INCOME AND LEVEL OF LIVING . .	29
Introduction to Analysis	29
Level of Living.	32
Net Farm Income.	34
Farm Experience and Age.	34
Education.	36
Value of Land and Buildings.	36
Investment in Farm Machinery	39
Total Improved Acres	39
Total Acres.	42
Investment in Livestock.	42
Operators' Debt.	45
Gross and Family Income.	46
Stepwise Regression Analysis	46

TABLE OF CONTENTS (continued)

Chapter V	Page
SUMMARY AND CONCLUSIONS	52
Appendix I	55
Bibliography	65

LIST OF TABLES

Table	Page
1. Distribution of Farms, Size of Farms, and Their Total Improved Acres, Bonnyville Farm Community of 1921-51 and 1956-61	18
2. Distribution of Field Crops by Percentage of Crop Acreage Grown, Bonnyville Farm Community 1921-61 . . .	19
3. Distribution of Farms Surveyed by Farm Capital Value, Bonnyville M.D. and the West Half of the County of Red Deer, 1964	22
4. Distribution of Farms Surveyed by Value of Land Per Acre, Bonnyville M.D. and the West Half of the County of Red Deer	23
5. Distribution of Farms Surveyed by Gross Sales of Agricultural Products, Bonnyville M.D. and the West Half of the County of Red Deer, 1964.	25
6. Distribution of Farm Operators Surveyed by Off-Farm Employment, Bonnyville M.D. and the West Half of the County of Red Deer, 1964	27
7. Simple Correlation of Various Factors with the Level of Living and Net Farm Income for the Farms Surveyed, Bonnyville M.D. and West Half of the County of Red Deer, 1964	30
8. Distribution of Farms Surveyed by Level of Living, Bonnyville M.D. and West Half of the County of Red Deer, 1964	33
9. Distribution of Farms Surveyed by Net Farm Income, Bonnyville M.D. and West Half of the County of Red Deer, 1964	35
10. Distribution of Farms Surveyed by Years of School Attended of Operator and Wife, Bonnyville M.D. and West Half of the County of Red Deer, 1964.	37

LIST OF TABLES (continued)

Table	Page
11. Distribution of Farms Surveyed by Value of Land and Building, Bonnyville M.D. and the West Half of the County of Red Deer, 1964	38
12. Distribution of Farms Surveyed by Investment in Farm Machinery, Bonnyville M.D. and West Half of the County of Red Deer, 1964	40
13. Distribution of Farms Surveyed by Total Improved Acres, Bonnyville M.D. and the West Half of the County of Red Deer, 1964	41
14. Distribution of Farms Surveyed by Total Acres, Bonnyville M.D. and West Half of the County of Red Deer, 1964.	43
15. Distribution of Farms Surveyed by Investment in Livestock, Bonnyville M.D. and West Half of the County of Red Deer, 1964	44
16. Distribution of Farms Surveyed by Total Gross Income, Bonnyville M.D. and West Half of the County of Red Deer, 1964	47
17. Distribution of Farms Surveyed by Total Net Family Incomes, Bonnyville M D. and West Half of the County of Red Deer, 1964	48

I. INTRODUCTION

This thesis involves a comparison between a depressed farm region and a progressive farm community. A depressed farm region is one that has either been developed and has depleted its natural resources or one that has lost its comparative advantage relative to the overall economy.

Arthur C. Bunce in Economics of Soil Conservation states:

The exploitation of large areas of land with accumulated stores of moisture and fertility means that the costs of production in such areas are lower than they would be if fertility were maintained. This effects the intensive and extensive margins not only of the areas possessing this initial gift In either case any development towards an appropriate organization of factors under exploitive conditions means that maladjustments inevitably arise as the virgin fertility is used up and costs increase.

It is the contention of this writer that maladjustment exists in the farm community of Bonnyville, a grey-wooded soil area. The initial exploitation of those soils was profitable, but the natural fertility of the grey-wooded soils decreased at an extremely rapid rate. Under such unfavourable physical conditions, farm consolidation is required to establish economic farming units. In such areas where consolidation has not taken place, low income farmers will predominate.

Areas of low farm income are characterized by low productivity of human and natural resources. This is not to imply that the people are inferior, nor does it imply underutilization of natural resources. It

¹Arthur C. Bunce, Economics of Soil Conservation. (Ames, Iowa: The Iowa State College Press, 1948), p. 44.

appears that too many farmers are attempting to gain an income from the available resources. When the initial fertility is used up, an area will be depressed, unless considerable consolidation takes place.

A progressive farm community is defined as a farming area or community that is adjusting to the technological revolution of this era. The main adjustment is a movement of people off farms with the result that the average size of farms increases and incomes rise so that operators are able to provide adequate incomes and levels of living for their families. One of the criteria used by A.R.D.A. to define a low income farm is gross sales. If the gross farm sales is less than \$2,500 then the farm is a low income farm by the A.R.D.A. definition.¹ The plight of the low-income farmer is a socio-economic problem. The terms low income farmer and rural poverty will be used interchangeably throughout this thesis to describe a segment of society that is not sharing in the general affluence.

The areas chosen for this study were the Bonnyville Municipal District 87 (M.D.) in Census Division 12 and the west half of the County of Red Deer in Census Division 8. Bonnyville is a low-income farm community; Red Deer is a high income farm community. Average gross farm sales in 1964 were \$11,778 in Red Deer and \$3,509 in Bonnyville. The rate of growth in gross sales has been slightly higher in Red Deer than in Bonnyville. The gross sales in 1936 were \$1,090 in Red Deer compared to \$400 in Bonnyville; consequently the absolute difference in gross sales has increased sharply--by \$7,179.² Thus the Bonnyville

¹Canada Dept. of Forestry. Federal-Provincial Rural Development Agreement, 1965-70. Ottawa, 1965. Queen's Printer, p. 3.

²Canada, Dominion Bureau of Statistics, Census of Canada 1936.

farmers have low incomes and what is important from the point of social policy, is that the relative position of the low income area is deteriorating.

Objectives

The main objectives of this study were related to the why, who, and what aspects of rural poverty. In the first stage of the analysis consideration was given to the question of why the Bonnyville low farm income problem had developed. In the second stage the who was considered by use of the A.R.D.A. definition of a low income farm. Finally, the third stage of analysis related to what were the chief factors associated with the high or low incomes. This study was primarily concerned with the characteristics of poverty and with identifying the chief factors which contributed to the level of living and net farm income.

Sources of Data

The Department of Agricultural Economics of the University of Alberta carried out a survey of the two selected farm communities, Bonnyville M.D. and the west half of the County of Red Deer. The farm survey took the form of a comprehensive questionnaire which covered questions relating to certain economic and non-economic factors associated with farm family living and migration. The Dominion Bureau of Statistics censuses were the other important sources of data analyzed in the study. (See Appendix I, page 55 for a complete list of the questionnaire and method of sampling.)

II. RURAL POVERTY AND ECONOMIC DEVELOPMENT

Alfred Marshall, writing at the turn of the century, stated that the study of poverty "is the study of the causes of the degradation of a large part of mankind".¹ Marshall considered the alleviation of this problem to be the highest aim of economics. John Kenneth Galbraith prefaced his book The Affluent Society with a quotation from Alfred Marshall: "The economist, like everyone else, must concern himself with the ultimate aims of man."

Poverty as a state of being has existed throughout recorded history. Poverty as experienced by the Canadian is, in some respects, different from poverty experienced by the Latin American. People are poverty stricken when their income, though adequate for survival, falls markedly below that of society as a whole. It is the affluent or the majority in society who set the social behavior code for the rest of society.

Galbraith divides poverty into two categories--case poverty and insular poverty.² Case poverty, although not the subject of this paper, is referred to as the "junk-filled yard, grey black hovel beside the railroad tracks," or "the basement dwelling in the alley." Galbraith

¹ Alfred Marshall, Principles of Economics (8th ed.: Toronto: Macmillan and Company Ltd., 1964), p. 2.

² J. K. Galbraith, The Affluent Society (Boston: Houghton Mifflin Company, 1958), pp. 325, 326.

considers case poverty as related to some characteristic of the individual so afflicted. In insular poverty everyone is poor. It is his contention that people remain in these pockets of poverty because of specific frustrations of environment. Arthur Lewis considers the extended family unit to be an example of a frustration of the environment. Galbraith believes it has something to do with the "homing instinct"--a desire of a large number of people to spend their lives near their place of birth. So long as this lack of mobility persists, the vicious circle of poverty continues.

Galbraith suggests a program directed towards youth and education as a cure for the homing instinct. It would be an investment in human capital starting at the kindergarten level. A program of this nature would require that poor communities be financed from outside. The investment in the children of the poor should be much greater than the investment in their counterparts in the affluent society. While the program is in progress, the frustrations of the community must also be alleviated. Galbraith states:

By identifying a land use which is consistent with a satisfactory standard of living and by assisting with the necessary reorganization of land and capital, public authority can help individuals to surmount frustrations to which they are now subject.¹

Schultz in "Reflections on Poverty Within Agriculture" defined poverty as the "state of being in need."² Schultz attacks the view that poverty within agriculture is natural, and he disagrees with some commonly held views of which the following are examples:

¹Ibid., p. 331.

²Theodore W. Schultz, "Reflections on Poverty within Agriculture," The Journal of Political Economy, LVIII, No. 1 (February, 1950), p. 2.

Poor farmers gravitate to poor land.

Many farm people prefer to stay poor rather than make adequate effort to improve their lot.

Although farm people may be poor in dollars, they are rich in those valuable appurtenances that go with being¹ close to nature and with the free independent living of farm life.

Schults holds that the poor are politically impotent and that there is a tendency for researchers to direct their main efforts to areas where poverty is not an important social problem. He explains that little research is directed at finding the cause of poverty:

This belief [acceptability of poverty] may exist because for the most part agricultural research workers have been trained in an intellectual climate that gives little emphasis to the strong liberal and humanitarian currents that have characterized our Western culture; because their research problems have not brought them into close contact with the poor in farming; and probably most important of all, because they have² been inclined to accept the prevailing folklore about poverty.

Schultz's definition of poverty "as being too poor to afford the level of living that has become generally established and that most people can afford" is similar to Galbraith's definition. Each defines the state of poverty as being thrust upon one by the behavior codes of the other members of society. Thus no arbitrary income level can be made to apply over regions that differ widely in average living standards.

Poverty may result from many causes or combinations of causes: limited physical resources which are economically available per capita or per family; limited capabilities of people due to physical handicaps, age, education, or other factors; limited mobility of people or of economic activities; and changing technical and economic conditions of

¹Ibid., p. 3.

²Ibid., p. 4.

production. These may be, however, the result of poverty. Schultz, along with several other social scientists, has examined poverty and its causes in the context of uneven growth rates. The differences in growth rates result in different levels of living. Schultz reasons that as the economy develops, the land closest to the place of development appreciates rapidly. Essentially this is the Von Thunen analysis of the relationship between spatial location and land-utilization patterns. Von Thunen contended that the differences in land use were attributable directly to variation in transportation costs, which in turn, were dependent upon such factors as the distance to market; ease of transportation; and bulk, weight, and perishability of the products sent to market.¹ In the land use pattern envisaged by Von Thunen lands near the market were used intensively to produce crop and livestock products which are highly perishable or heavy and bulky to transport. The land located farther away would suffer an economic handicap determined by transportation costs. In the Schultz model the first concentric zone surrounding the large industrial urban community is the milk shed. Within the first zone the physical characteristics of the land differ, but poverty will not be widespread and may not exist at all. The point Schultz makes is that land is passive; it can describe the location of poverty but cannot analyze its underlying causes.

Economic development is viewed by Schultz in the aggregate and on a per capita basis. His argument assumes that both the aggregate and per capita incomes are increasing. The per capita income in some

¹Raleigh Barlowe, Land Resource Economics (New Jersey: Prentice-Hall, Inc., 1958), p. 33.

communities appears stationary, while in other communities it is increasing. Ricardo, Malthus and Mill considered economic growth to be an increase in aggregate income while per capita income remained stationary. The aggregate could leap forward or move forward slowly, but growing populations would eventually absorb the extra production. Production was the limiting factor of economic development of the nation. Schultz believes the above definition to be too narrow and instead states: "Economic progress consists of an increase in aggregate income with changes in the per capita income unspecified, except that no community becomes worse off."¹ He looks at the problem to determine the causes of growth and the causes of disparity in per capita incomes.

Prior to the Industrial Revolution the disparity in per capita incomes was not as great as these disparities are today. Benjamin Higgins in Economic Development wrote that disparities in levels of living were not much different between nations prior to the advent of the Industrial Revolution, but as Western Europe developed economically, per capita incomes and levels of living began to rise.² Schultz considers that the important change which resulted from the Industrial Revolution in Europe was the extraordinary migration from Europe to Asia and North America. The question posed by Schultz is:

Was it the poor, the people in the communities that were being by-passed by the industrial revolution, who migrated abroad; and did they do so because they found it easier to go abroad than participate in the growing fortunes of people generally in communities benefiting from economic progress.³

¹Theodore W. Schultz, The Economic Organization of Agriculture (New York: McGraw-Hill Book Co. Inc., 1958), p. 160.

²Benjamin Higgins, Economic Development (New York: W.W. Norton & Company, Inc., 1959), p. 314.

³Schultz, loc. cit., p. 161.

In Scotland the clearing of the Highlands (to make way for sheep) witnessed the departure of whole communities to foreign shores. The wool the sheep grew had a higher premium than the peasant farmer; the latter was considered extremely low in values of human capital.

Finally, Schultz considers the demographic characteristics of a nation. There are, he says, three population types in the world at present. The first of these types is the pre-industrial society; the second is the transitional type with increasing birth rates and falling death rates. The last is the industrial type characterized by life expectancy twice that of the pre-industrial society and the majority of the population engaged in the active labour force. Schultz states that in agriculture the demographic make-up is of type I and II, and this description he considers applicable in the advanced nations as well.

Rostow has emphasized the critical importance of agriculture at certain stages in the growth of a nation's economy and has made a number of lasting contributions to the literature of economic growth. He identifies five stages of growth: the traditional society, the pre take-off, the take-off, the drive to maturity, and the age of high mass consumption.¹ Schultz considered that the demographic characteristics of agriculture in the advanced nations possessed the same demographic characteristics of those found in Rostow's pre take-off and take-off stages of economic growth. Rostow states that in the pre take-off, "Agriculture must supply expanded food, expanded markets, and an expanded supply of loanable funds to the modern sector."² He says that

¹W. W. Rostow, The Stages of Economic Growth (London: Cambridge University Press, 1960), pp. 4-10.

²Ibid., p. 24.

in the take-off stage:

. . . the forces making for economic progress which yielded limited bursts of enclaves of modern activity, expand and come to dominate the society. Growth becomes a normal condition . . .¹

New techniques spread in agriculture as well as industry, as agriculture is commercialized and increasing number of farmers are prepared to accept² the new methods and deep change they bring to ways of life.

The above quotation of Rostow exposes the crux of the low farm income problem--"as agriculture is commercialized." No mention is made of agriculture which is not commercialized. That aspect Rostow, with all his advantage of hindsight, completely neglects, and he is not alone among the theorists of economic growth. Schultz comes the closest to recognizing that sector of society which has been by-passed by economic growth when he describes the demographic make-up of agriculture.

Johnson, writing in 1951 states: "The United States Government spends far more resources upon information about the commodity markets than it does upon labour markets. If anything the reverse should be true."³

In 1963 Johnson used the same argument more forcefully:

We as a nation should face up to the possibility--I do not say fact--that the relative low return to labour in agriculture is due in considerable degree to the low level of education and skills of a large segment of the farm population. We know, for example, that the median years of schooling completed by all male farm labourers 18 years and over was 7.7 years in 1959 compared to an average for all employed males of 11.7 years. There seems to have been no increase in the⁴ education level of farm labour during the past two decades.

¹Ibid., p. 7.

²Ibid., p. 8.

³D. G. Johnson, "Policies and Procedures to Facilitate Desirable Shifts of Manpower," Journal of Farm Economics, XXXIII, No. 4, Part 2 Proceedings (November 1951).

⁴D. G. Johnson, "Implications of United States Policy," Journal of Farm Economics, (May, 1963), pp. 339-340.

Some observers relate the excessive numbers of persons in agriculture to a deficiency in educational preparation for urban employment. The problem of unemployment and underemployment in agriculture tends to be hidden. Redirecting the development of human resources in rural areas is a task of considerable proportion. It is part of the large program objective of achieving full employment in the total economy. Unfortunately underemployment within the agricultural sector may increase rather than decrease unless a systematic approach to the problem is taken now.

Denison's analysis of the source of economic growth in the United States has provided empirical support for the human capital thesis. He found that the total increase in United States real national income between 1928 and 1957 to be 68 percent due to increased inputs of productive factors and 32 percent due to increased output per unit of input.¹ In breaking down the 68 percent inputs, 54 points were accounted for by the increase in total hours worked, 23 points were accounted for by the increased education of the labour force, and 4 points by the increased experience and better utilization of women workers. Of the 32 percent attributed to increased output per unit of input, 20 points were accounted for by the increase in knowledge, 11 points by greater economies of scale, and 3 points by reduced waste of labour in agriculture and the shift of labour from agriculture to industry; 2 points were also deducted by increased restrictions in the efficient use of resources. Denison found only 15 percent of the increase in per capita income to be accounted for by increased capital.

¹E. F. Denison, The Sources of Economic Growth in the United States and the Alternatives Before Us. Committee for Economic Development. (New York, 1962).

Menzies recommends an attack on poverty from the national level of government by applying fiscal, monetary, and commercial policies appropriate to a high and sustained rate of economic growth. Failure to adopt a program for balanced regional development will result in a further concentration of population in Central Canada and there will be few secondary industries in the resource based regions. Therefore, the problem in Canada is first the establishment of balanced regional development which is economically and socially viable and, second providing suitable employment for the manpower living within these regions. Menzies recommends economic planning as the solution to the poverty problem. The main ingredients of the planning are investment in human capital and balanced regional development.

Once we recognize that the eradication of poverty has become an essential economic interest we must prepare ourselves for the major redistributational reforms essential to the solution of the twin problem of poverty and economic planning this necessarily entails.¹

Disparities of incomes and levels of living between nations are increasing. Within nations the relative advantage of communities located near the centres of economic activity will increase. The communities that grow most rapidly are those which have the largest percent of its population engaged in the labour force. The communities which are distant from the economic sphere of influence will degenerate into sub-culture. Cultural drawbacks, low mobility, and unequal investment in human capital results in poverty.

¹M. W. Menzies, Poverty in Canada (Winnipeg: Manitoba Pool Elevators, Wheat Pool Building, 1965), p. 26.

III. LAND SETTLEMENT AND LOW INCOME FARMERS

Land settlement was considered before an analysis of the Bonnyville low farm income problem was made. The problem, like so many others, was not a case of someone or some groups having done nothing. On the contrary, it was a case of someone or some groups having done something in the past which created the present circumstances. Thus land settlement was considered an important factor contributing to present conditions.

Lewis considers success of settlement to be dependent on the following factors: "Choosing the right settlers; physical preparation of the site before the settlers arrive; settlers' capital; the organization of group activities; the acreage per settler; and the conditions of tenure."¹

At the outset of this part of the analysis it can be said that none of the above criteria cited by Lewis for successful settlement was applied to the settlement of Bonnyville M.D., nor were they applied in Western Canada. In democracies such as Canada new government policies tended to evolve from past policies. They were at best conceived by trial and error. Hindsight enabled the policy maker to recognize past mistakes. It was with the advantages of hindsight that the settlement

¹W. A. Lewis, "Thoughts on Land Settlement," Agriculture in Economic Development, ed. Eicher Witt (Toronto: The McGraw-Hill Book Co., 1964), p. 299.

of Bonnyville M.D. is considered, keeping in mind Arthur Lewis' criteria for good settlement.

The reason given by the settlers for choosing the settlement area of Bonnyville was "the abundance of wild life, fertility of soil, proximity of the lake, abundance of pine trees for lumber and poplar trees for fuel."¹

The Homestead Policy at the time of settlement (1907) was based on the premise that every 160 acres, or with the preemption every 320 acres, of land in western Canada was an economic farm unit capable of supporting a family farm. Unfortunately this was not always the case because of the nature of the soil, the climatic conditions in the settled area, the economic conditions, and the state of the agricultural arts.

The past or the present homestead policy did not take into account the size of the settler's family although as Ashby states, the size of the family is most important in determining the acres which should be allocated to the individual settler.² When a settler's family grows up, more land will be required if the family remains in agriculture, or less land will be required if the family decided to leave agriculture.

Each settler in Bonnyville M.D., like his counterpart elsewhere, was responsible for clearing his own land. Lewis contends that if a country is interested in getting people onto the land, it should clear the land and build roads into the settlement at the public's expense.

During the initial stages of settlement, land possesses a virgin

¹Frontier Days, a Supplement of the Bonnyville Tribune (August 2, 1957), p. 2.

²Lewis, loc. cit., p. 310.

fertility. According to Bunce virgin fertility is not economical to maintain, and it is to the benefit to the farmer to exploit this fertility. There was evidence of virgin fertility for the majority of soil types in the Bonnyville M.D. However, the isolated character of the community (the only contact with the outside world was through the telegraph 1910 and the wagon trail to St. Paul) virtually dictated a cattle raising economy which did not require intensive cultivation of the soil. Therefore, the first twenty years of settlement were not the exploitive years of farming. The first twenty years of settlement included World War I, a time when the Provincial Cow Bill greatly encouraged the raising of cattle.

The extensive drought in the southeastern part of the province 1921 and 1922, coupled with the post-war deflation period of 1921 to 1925, discouraged land settlement in general. However, from 1926 to 1930 there was some renewed activity in land settlement, mostly in the northern areas of the province. The population of Bonnyville M.D. increased accordingly from 841 in 1911 to 2,515 in 1921 and to 5,254 in 1931.¹ Wood states that by 1930 there was a scarcity of available arable land of good quality in Alberta. Most of the land in the better soil zones was settled long before 1930.² Therefore, the settlers who came after 1930 settled on sub-marginal land.

The arrival of the railway in 1928 opened the Bonnyville region for greater settlement. The settlers were eastern Europeans. The

¹Canada, Dominion Bureau of Statistics, Census of Canada 1961, Population Series 1.1, p. 13-7.

²V. A. Wood, "Public Land Policy for Alberta," (unpublished Ph.D. thesis, University of Minnesota, 1953), p. 55.

increase in the numbers of the eastern Europeans was large enough to develop two social orders, French Canadian and eastern European. Language must have been a severe handicap to the eastern European in settlement. Although he was agrarian in background, he was not familiar with the localized conditions of farming in Bonnyville M.D.

The disastrous drought conditions prevailing in the more arid part of the country between 1930-1935 added to the northerly migration. Bonnyville M.D. again increased its population from 1931-1941 by 44 per cent. However, this new increase in settlement superimposed the English speaking Canadian culture upon the French and eastern European cultures.

The settlers who arrived in Bonnyville M.D. were European immigrants and resettled farmers. Neither of these groups possessed the necessary capital required by the new farming culture developing in Bonnyville M.D. During this period a farmer wishing to resettle could obtain a \$600 loan to move his possessions to a more favourable location. The fact that resettlement was government financed suggested a lack of capital on the part of the resettled farmer. Capital was important during the shift to an exploitive grain growing system of farming.

The coming of the railway not only disrupted the social character of the community, it also made it possible to move grain out into the national markets and it caused a change in the farming culture. A shift from a livestock to a grain growing economy became possible. The soil reserves of moisture, fertility, and organic matter were soon exploited. Under an exploitive system of grain farming, income will be higher than under a permanent grazing system. During a period of exploitive farming the socio-economic fabric of a community develops and the community's aspirations are founded. When these dreams do not materialize and when

the period of exploitive conditions are over, maladjustments in the farming culture arise.

After the exploitive era of farming is over, the problem of adjusting the farm community to its natural resource base arises. A solution to this problem of adjustment is to reduce the number of people engaged in farming or adopt an agricultural system capable of supporting those presently farming.

The ten year period 1926 to 1936 was the period of active settlement in Bonnyville M.D. (Table 1). Farm size decreased by 5 percent. That was the community's exploitive era of farming. With the advent of the railway in 1928 a shift from a cattle raising to a grain growing economy took place. The average number of cultivated acres increased and farms became smaller. The average number of cultivated acres increased very slowly in the 1926-1936 period. The end of the exploitive era of farming in the Bonnyville community occurred about 1940. There was a net decrease of 17 percent in the number of farms during World War II. There was no continuation of the trend towards farm consolidation in the immediate post-war years. During the period 1946-1951 the number of farms in the community was maintained. From 1956-1961 there was a further reduction in the number of farms and hence more consolidation.

Apart from the coming of the railway to the Bonnyville area in 1928 little else occurred to cause a radical change in the farming economy (Table 2). It was not until 1956 that acreages of mixed grains and cultivated hay showed substantial increases. Since the close of the exploitive era the size of farms has increased. The increase in improved acres resulted from an increase in total farm size and the clearing of

TABLE 1

DISTRIBUTION OF FARMS, SIZE OF FARMS, AND THEIR TOTAL IMPROVED ACRES, BONNYVILLE FARM COMMUNITY
OF 1921-51 AND 1956-61¹

Year	Number of Farms	Total Acres Per Farm	Improved Acres Per Farm	Percentage Change in Number of Farms	Percentage Change in Improved Acres Per Farm
1921	651	202	34	12	67
1926	731	232	57	82	5
1931	1,329	230	60	29	5
1936	1,723	227	63	5	36
1941	1,814	244	86	-17	29
1946	1,489	274	111	.8	27
1951	1,501	312	141		
1956	1,133	350	171	-16	28
1961	941	401	220		

Source: D.B.S. 1921-1961.

¹The period 1921-51 was based on a slightly larger land area including the Bonnyville M.D. of 1965. The period 1956-61 applied only to the land constituting the Bonnyville M.D. of 1965. The 1921-51 land area was approximately 20 percent larger than the Bonnyville M.D. of 1965.

TABLE 2

DISTRIBUTION OF FIELD CROPS BY PERCENTAGE OF CROP ACREAGE GROWN, BONNYVILLE FARM COMMUNITY
1921 - 61.¹

Year	Wheat	Barley	Oats	Other Crops	Total
1921	28	3	61	8	100
1926	59	4	27	8	100
1931	58	6	27	9	100
1936	58	11	23	8	100
1941	37	22	32	9	100
1946	40	22	32	16	100
1951	33	30	18	16	100
1956	20	19	35	26	100
1961	33	14	19	34	100

Source: D.B.S. 1921-61.

¹Based on total annual cultivated acres 1921-61.

brush land. Farms have consistently increased their cultivated and total acres since 1936. Farm consolidation appears to be taking effect by evolution rather than by revolution. Thus, the trend to larger farm units and to a livestock based farm economy had not been strong enough to eradicate widespread poverty in the community.

Low Income Farmers

Low income farms are defined by the A.R.D.A. (Agriculture Rehabilitation and Development Act) administration as those farms, excluding residential and institutional farms, with a capital value of less than \$24,950, gross sales of agricultural products of less than \$2,500, and off-farm work by the operator of less than 25 days during the 12 month period prior to the 1961 census.¹ Thirty to 40 percent of the farms in Bonnyville were classed as low-income farms by the A.R.D.A. administration in 1961. By contrast Red Deer had between 10.1 - 20.0 percent of low-income farms in 1961. The area south of Red Deer comprising census divisions 1 - 6 had a lesser degree of disadvantage than census division 8, of which Red Deer was part. In comparison Bonnyville was the most disadvantaged region of the province, sharing this disadvantage only with the Edson area. The two communities considered in this study were chosen to provide a contrast of incomes and levels of living in association with A.R.D A.'s definition of low-income farms.

¹Canada Dept. of Forestry. Federal - Provincial Rural Development Agreement 1965-70. (Ottawa: Queen's Printer, 1965), p. 3.

Farm Capital Value

The A.R.D.A. definition of farm capital value was used in this study. The capital value of each farm was based on the operator's assessment of the market value of his investment in land and buildings, machinery and equipment (including automobiles), and livestock and poultry. Land which was rented was an estimate of the market value, not the original replacement or assessed value.

In 1964, 52 percent of the farms surveyed in Bonnyville had a capital value of less than \$24,950 contrasted with 10 percent in Red Deer (Table 3). The main factor contributing to the differences in capital value between the two areas was land values (Table 4).

Land values in Bonnyville depended to a considerable degree on the total improved acres of each individual quarter section, and, consequently, the value of farms varied greatly. In the west half of the County of Red Deer several areas of differing land values could be identified. The southwestern corner of the county had the lowest land values and the largest amount of brush land. Land values were as high as \$150 per acre in the region between Spruceview and Markerville and were as high as \$300 per acre in the immediate vicinity of Penhold. There were, of course, exceptions to the above generalizations partly because of soil or topographic differences or the attachment of a particular farmer to his land. Such characteristics as rivers, distance from school, hardtop roads and the date of the last land sale in a given area considerably influenced the operator's estimate of his land value. Generally speaking, operators were able to provide a ready estimate of the value of rented land but appeared not to have made a recent estimate of the value of their own land. On the whole, land values increased from

TABLE 3

DISTRIBUTION OF FARMS SURVEYED BY FARM CAPITAL VALUE, BONNYVILLE M.D.
AND THE WEST HALF OF THE COUNTY OF RED DEER, 1964.

Farm Capital Value Dollars	<u>Bonnyville M.D.</u>		<u>W. Red Deer County</u>	
	Number	Percent	Number	Percent
0- 9,999	15	12	0	0
10,000- 19,999	29	22	3	2
20,000- 24,950	24	18	11	8
24,951- 29,999	18	14	5	4
30,000- 39,999	21	16	13	10
40,000- 79,999	23	17	53	39
80,000- 99,999	1	1	17	13
100,000-149,999	--	--	19	14
150,000-199,999	--	--	10	7
200,000-Over	--	--	4	3
Total	131	100	135	100
	<u>Bonnyville</u>		<u>Red Deer</u>	
Minimum	\$ 3,460		\$ 14,360	
Maximum	84,650		239,100	
Mean	26,815		77,102	
Modal Class	10,000-19,999		40,000-79,999	

TABLE 4

DISTRIBUTION OF FARMS SURVEYED BY VALUE OF LAND PER ACRE, BONNYVILLE M.D.
AND THE WEST HALF OF THE COUNTY OF RED DEER, 1964.

<u>Value of Land</u> Dollars Per Acre	<u>Bonnyville M.D.</u>		<u>W. Red Deer County</u>	
	Number	Percent	Number	Percent
0 - 20	23	17	--	--
21 - 40	43	33	2	1
41 - 60	37	28	10	8
61 - 80	18	14	10	8
81 - 100	8	6	33	24
101 - 120	1	1	15	11
121 - 140	1	1	23	17
141 - 160	--	--	25	19
161 - 180	--	--	7	5
181 - 200	--	--	6	4
201 - Over	--	--	4	3
Total	131	100	135	100
	<u>Bonnyville</u>		<u>Red Deer</u>	
Minimum	\$ 3		\$ 45	
Maximum	136		333	
Mean	43		121	
Modal Class	41 - 60		81 - 100	

west to east in the west half of the County of Red Deer, whereas no definite trends could be established in Bonnyville.

The importance of land quality in Red Deer is further indicated by the increase in land values since 1936. In 1936 the average value of land and buildings was \$4,979 per farm in Red Deer and \$2,070 per farm in Bonnyville.¹ Twenty-eight years later in 1964 the value of land and buildings per farm had increased to \$54,145 in Red Deer and to \$16,761 in Bonnyville. Farms in each community had corresponding increases in average total acres. Therefore, the high productivity of the Red Deer farm land was reflected by an increase that was three times per acre greater than the increase in Bonnyville's farm land.

Gross Sales of Agricultural Products

Gross sales of agricultural products included sale of all live-stock products, and of total grain sales in the calendar year 1964 (Table 5). No consideration was given to the inventory of grain or other farm products carried on the farm. Grain belonging to the 1963 harvest or years preceding, which was sold during the January 1, 1964 - December 31, 1964 period, was considered sales of that calendar year. Forty-four percent of the Bonnyville farms surveyed and 11 percent of the Red Deer farms surveyed had gross sales of agricultural products of less than \$2,500 in 1964.

In Red Deer 14 farms surveyed had a capital value of less than \$24,950, and 16 farms had gross sales of less than \$2,500. When the individual farms with a capital value of less than \$24,950 were considered with respect to their gross sales of agricultural products,

¹Canada, Dominion Bureau of Statistics, Census of Canada, 1936.

TABLE 5

DISTRIBUTION OF FARMS SURVEYED BY GROSS SALES OF AGRICULTURAL PRODUCTS,
BONNYVILLE M.D. AND THE WEST HALF OF THE COUNTY OF RED DEER, 1964.

<u>Gross Sales</u> Dollars	<u>Bonnyville M.D.</u>		<u>W. Red Deer County</u>	
	Number	Percent	Number	Percent
0 - 499	13	10	3	2
500 - 999	8	6	1	1
1,000 - 1,499	19	14	2	1
1,500 - 1,999	16	12	2	1
2,000 - 2,499	16	12	8	6
2,500 - 2,999	9	7	2	1
3,000 - 4,999	27	21	21	16
5,000 - 6,999	17	15	25	19
7,000 - 9,999	2	2	23	17
10,000 - Over	4	3	48	36
Total	131	100	135	100
	<u>Bonnyville</u>		<u>Red Deer</u>	
Minimum	\$	0	\$	0
Maximum		14,943		42,180
Mean		2,976		10,337
Modal Class		3,000 - 4,999		10,000

six farms out of the total of 14 farms had gross sales of less than \$2,500; thus these six farms were low-income farms in the A.R.D.A. definition of capital value and gross sales. The remaining ten farms reporting gross sales of less than \$2,500 had capital values greater than \$24,950 and were not included as low-income farms. Therefore, by using capital value and gross sales to define a low-income farm, 4.0 percent of the farms surveyed in Red Deer qualified as low-income farms.

In Bonnyville 68 farms reported capital values of less than \$24,950, and 50 of those farms reported gross sales of less than \$2,500. Thus 50 farms were low-income farms. The remaining 18 farms reporting low capital values had gross sales greater than \$2,500. The four farms unaccounted for by low gross sales had capital values higher than \$24,950. By using the capital value and the gross sales criterion, 38 percent of the farms surveyed in Bonnyville were defined as low-income farms in 1964.

Off-Farm Employment

The third part of the A.R.D.A. definition refers to the number of days in the year in which the operator worked off his farm for wages. A farmer who worked off his farm for more than 25 days is not a low income farmer. Thirty-six percent of the farmers surveyed in Bonnyville and 29 percent of the farmers surveyed in Red Deer were engaged in off-farm employment in 1964. None of the 6 farmers in Red Deer who were designated low income farmers were employed off-farm.

Forty-seven Bonnyville farmers were engaged in off-farm employment during 1964. Twenty-three of those 47 farmers were classed by capital

value and gross sales of agricultural products to be low-income farmers. The other 24 farmers who worked off-farm had capital values or gross sales in excess of the A.R.D.A. definition of a low-income farmer. Therefore, 23 of the 50 farms that were originally classed as low-income farms in Bonnyville were eliminated because the operators worked off-farm more than 25 days in the preceding year. The net result is that when the full A.R.D.A. definition of a low-income farm is applied 21 percent of the farms surveyed in Bonnyville and 4.0 percent of the farms surveyed in Red Deer were classed as low-income farms.

TABLE 6

DISTRIBUTION OF FARM OPERATORS SURVEYED BY OFF-FARM EMPLOYMENT,
BONNYVILLE M.D. AND THE WEST HALF OF THE COUNTY OF RED DEER,
1964.

<u>Off-Farm Employment</u>	<u>Bonnyville M.D.</u>		<u>W. Red Deer County</u>	
	Number of Farmers	Percent of Farmers	Number of Farmers	Percent of Farmers
1 - 25	1	2	4	10
26 - 50	4	9	1	4
51 - 75	11	23	2	7
76 - 100	4	9	5	18
101 - 125	5	11	0	0
126 - 150	3	6	0	0
151 - 175	1	2	1	4
176 - 200	1	2	2	7
201 - 365	17	36	14	50
Total	47	100	29	100

The A.R.D.A. definition of a low-income farm is not an adequate description of poverty. For example, the low-income farmers of the two areas surveyed were not alike in their makeup although they were all classed as low-income farmers. In Red Deer five of the six operators who were low-income farmers were over 65 years of age and three were receiving the old age pension. The low-income farmers in Bonnyville included farmers under 35 years and over 50 years of age, however, that does not imply that operators between the ages of 35 and 50 had profitable enterprises. Most farmers who worked off the farm were less than 50 years of age. The main source of employment for those 23 operators was the Bonnyville Municipality. The nature of their employment was cutting brush along the municipal road--a winter works project for those who had fallen in arrears in the payment of their taxes.

The A.R.D.A. criterion of 25 days off-farm employment disregards the problems a farmer faces in becoming established in farming, and neglects those who, out of necessity, are forced to supplement their farm earnings. When the definition of low income farming is based on capital values and gross sales of agricultural products, above 38 percent of the farms surveyed in Red Deer were low income farms in 1964. Poverty was not restricted to the older members of the Bonnyville farm community as was the case in Red Deer--it was widespread poverty in Bonnyville experienced by all age groups.

IV. FACTORS RELATING TO FARM INCOME AND LEVEL OF LIVING

Introduction to Analysis

Net farm income and level of living were chosen as measures of economic well being (Table 7). Some other characteristics may explain the variation in these two measures of economic well being in each community and the differences between the two communities. One might expect that long years of experience and old ages of operators would be associated with high net income in areas suffering from capital shortage; an older farmer would have accumulated a large amount of capital. Only the young farmer in the thriving community would have the physical stamina to manage and operate a large productive farm. The relationship between economic well being, age and experience has important policy implications. If low income farmers are young then training programs might be a desirable social program; if they are old then their income position can be regarded as the same kind of problem as low incomes of the elderly in general. The social policy might be simply ensuring adequate levels of living and consumption.

The farmer's wife may serve in the role of an information gatherer and processor. A literate wife might be expected to read the farm papers and listen to informative radio broadcasts that inform farmers of profitable new techniques of farming. Thus one would expect well educated wives to make a contribution to higher net farm incomes and to enjoy the higher levels of living that could be afforded by

TABLE 7

SIMPLE CORRELATION OF VARIOUS FACTORS WITH THE LEVEL OF LIVING AND NET FARM INCOME FOR THE FARMS SURVEYED, BONNYVILLE M.D. AND WEST HALF OF THE COUNTY OF RED DEER, 1964.

Various Factors	Variable Number	Bonnyville M.D.		W. Red Deer County	
		Level of Living	Net Farm Income	Level of Living	Net Farm Income
Year operator started farming	X ₁	.01	-0.15	.05	.08
Operator's farm experience	X ₂	.02	.19	-0.03	-0.07
Operator's age	X ₃	-0.05	.11	-0.14	-0.12
Operator's years of schooling	X ₄	.22 ^{xx}	-0.04	.29 ^{xx}	.18
Spouse's years of schooling	X ₅	.28 ^{xx}	.17	.33 ^{xx}	.08
Value of land and buildings	X ₆	.46 ^{xx}	.29 ^{xx}	.27 ^{xx}	.55 ^{xx}
Level of living	X ₇	--	.38 ^{xx}	--	.21
Investment in machinery	X ₈	.48 ^{xx}	.28 ^{xx}	.46 ^{xx}	.61 ^{xx}
Total improved acres	X ₉	.36 ^{xx}	.27 ^{xx}	.42 ^{xx}	.58 ^{xx}
Total acres	X ₁₀	.17	.23 ^{xx}	.34 ^{xx}	.50 ^{xx}
Total livestock investment	X ₁₁	.32 ^{xx}	.44 ^{xx}	.23 ^{xx}	.35 ^{xx}
Operator's debt	X ₁₂	.14	.14	.24 ^{xx}	.12
Total gross income	X ₁₃	.45 ^{xx}	.67 ^{xx}	.31 ^{xx}	.78 ^{xx}
Net farm income	X ₁₄	.38 ^{xx}	--	.21	--
Net farm family income	X ₁₅	.39 ^{xx}	.58 ^{xx}	.27 ^{xx}	.81 ^{xx}

^{xx} Significant at 1 percent level.

^x Significant at 5 percent level.

higher incomes. There were perhaps, many factors at work when the selection of the farmer's wife took place. If, for example, a capable farmer and an educated woman were attracted to each other, then wife's education and farm income would be associated, but not related as cause and effect. The subsequent analysis will indicate whether an association exists, but the question of causation cannot be settled on the basis of the evidence contained here.

All investments, whether in land and buildings, machinery, or livestock will be associated with net farm income. High investment increases labour productivity and also bears a return itself. The relative size of the investment in the three categories will be a crude indicator of the organization of each farm. The category that explains most of the variation in economic well being is a key category. If high investments in livestock was associated with high net farm incomes, then it would seem that the appropriate farm organization would require more livestock on the low income farms.

The capacity of a farm to bear a burden of debt would depend upon the capital value of the farm and the net farm income. Thus, one would expect that the average debt would be higher for a high capital and income community than for a low income community, assuming that the operator's taste for debt as opposed to high equity were the same in both areas. Debt could be incurred either for producer or consumer goods. A relationship between debt and level of living would be more likely in a high income area where the pressure for capital assets seemed less.

High gross farm income will quite naturally be associated with high net farm income, because some costs are fixed. Gross income

includes gross sales and supplementary payments but did not include off-farm earnings or transfer payments. The association of gross farm and net family incomes would be more direct in the high income community where less reliance is placed on non-farm income and transfer payments. Similarly high net farm incomes and high net family incomes should be closely associated in the high income area. Non-farm earnings and transfer payments make up a large part of net family income in a low income area and net farm income will not be closely associated with net farm family incomes.

Level of Living

An index to represent the level of living was computed from a list of household items including the condition of dwelling.¹ The rating of the dwelling was determined from its general condition and was assessed as follows: poor, one point; fair, two points; good, three points; and excellent, four points. Dwellings with less than four rooms received one point; dwellings with between four and six rooms received two points; and dwellings with seven or more rooms received three points. The remaining fourteen questions were related to household characteristics. A rating of one was given if the dwelling possessed the particular characteristic and zero if not. The household characteristics included electricity, telephone, running water, indoor bath, hot water heater, central heating, radio, television, refrigerator, deep freeze, power washer, magazine subscription, daily or weekly newspaper,

¹The index resembles that employed by Helen C. Abell in the publication "Alberta Farm Operators and the Level of Living Concept 1952." (Canada Department of Agriculture, Economic Division, Report No. 2, Oct. 1952), pp. 18-20.

and ten or more books. Therefore if a dwelling had more than seven rooms, was in excellent condition, and possessed all fourteen household characteristics, that dwelling would have a level of living of 21. No dwelling in either community reached the maximum on the level of living index (Table 8).

TABLE 8

DISTRIBUTION OF FARMS SURVEYED BY LEVEL OF LIVING INDEX, BONNYVILLE M. D. AND WEST HALF OF THE COUNTY OF RED DEER, 1964.

Level of Living Index	Bonnyville M.D. Percent	W. Red Deer County
Under 1	1	0
1 - 3	1	0
4 - 7	7	5
8 - 11	36	7
12 - 15	41	21
16 - 18	14	34
19 - 20	0	33
Total	100	100
	<u>Bonnyville</u>	<u>Red Deer</u>
Number	131	135
Minimum	0	5
Maximum	18	20
Mean	12	16
Modal Class	12 - 15	16 - 18
St. Dev.	3.3	3.7

The residents of Red Deer had a considerably higher level of living than the residents of Bonnyville in 1964. Each community had more residents with ratings above the mean than below.

Net Farm Income

Net farm income equalled the sum of gross sales of agricultural products, income in kind, and supplementary payments, less operating expenses. Income in kind is the produce grown on the farm and consumed by the household. Supplementary payments included Canadian Wheat Board payments, Co-operative Association dividends, Prairie Farm Assistance Act payments received for crop loss, deficiency payments, corporation dividends, etc. Operating expenses consisted of all expenses involved in the operation of the farm, including depreciation and taxes.

The largest net farm income earned in Bonnyville in 1964 was \$4,865 (Table 9). Forty-eight percent of the farms in Bonnyville earned less than \$1,000 net farm income. By contrast only 12 percent of the Red Deer farms earned less than \$1,000 in 1964. Ten percent of the Red Deer farms reported net incomes in excess of \$10,000 and the maximum was \$17,330. The frequency distributions of net farm incomes were skewed to the left for both areas, but the skewness was greater for Bonnyville.

Farm Experience and Age

Farmers with long experience had high incomes in Bonnyville, possibly because they had accumulated capital over their lifetimes (Table 7). The old experienced farmers in Red Deer had low incomes as the result of a deliberate phasing out of farming.

A considerable proportion of the older members of the Bonnyville

TABLE 9

DISTRIBUTION OF FARMS SURVEYED BY NET FARM INCOME, BONNYVILLE M.D. AND
WEST HALF OF THE COUNTY OF RED DEER, 1964.

Net Farm Income Dollars	Bonnyville M.D. Percent	W. Red Deer County Percent
Under 1,000	48	12
1,000 - 1,999	21	13
2,000 - 2,999	22	13
3,000 - 3,999	7	18
4,000 - 4,999	2	16
5,000 - 5,999	--	6
6,000 - 6,999	--	4
7,000 - 7,999	--	4
8,000 - 8,999	--	4
10,000 and over	--	10
Total	100	100
	<u>Bonnyville</u>	<u>Red Deer</u>
Number	131	135
Minimum	-975	-800
Maximum	4,865	17,330
Mean	1,257	4,523
Mode	1,019	3,238
St. Dev.	1,232	3,645

farm community had been born abroad. Their standards of comfort in accommodation were relatively simple by modern Canadian standards. The simplicity of their tastes was reflected by their apparent contentment with a small holding and a few amenities. The older farmers in Red Deer also maintained less modern homes than the younger farmers.

Education

The education of the operators and their wives was measured by the years of school attended in Canada or elsewhere. Two percent of the operators in Red Deer had received an education beyond Grade 12 (Table 10). None of the operators' wives in Red Deer had less than five years of schooling; nine percent of the wives in Bonnyville had less than five years of schooling. The women in Bonnyville were slightly better educated than were their male counterparts.

The higher educational attainment in Red Deer as compared to Bonnyville was best explained by the differences in the cultural values and educational opportunities of the two communities when their present generation of farmers were educated. The index of the level of living disregards the variation in the sociological composition of each community. Younger farmers in Bonnyville had more education than the older operators, but the advantages accruing to higher education were not sufficient to off-set the advantage the older farmers had in a larger equity.

Value of Land and Buildings

The average value of land and buildings was over three times greater in Red Deer than in Bonnyville (Table 11). This variable was important in explaining the level of living and net farm income in

TABLE 10

DISTRIBUTION OF FARMS SURVEYED BY YEARS OF SCHOOL ATTENDED OF
 OPERATOR AND WIFE, BONNYVILLE M.D. AND WEST HALF OF THE COUNTY
 OF RED DEER, 1964.

Years of School	<u>Bonnyville M.D.</u>		<u>W. Red Deer County</u>	
	Percent of Operators	Percent of Spouses	Percent of Operators	Percent of Spouses
Under 5	17	9	4	0
5 - 6	14	11	6	7
7 - 8	41	35	45	46
9 - 10	23	28	28	26
11 - 12	5	17	16	19
Over 12	0	0	1	2
Total	100	100	100	100
	<u>Bonnyville</u>		<u>Red Deer</u>	
Number	131	112	135	115
Minimum	0	2	4	5
Maximum	12	12	16	18
Mean	7	8.2	8.6	8.5
Modal Class	7-8	7-8	7-8	7-8
St. Dev.	2.7	2.4	2.2	1.6

TABLE 11

DISTRIBUTION OF FARMS SURVEYED BY VALUE OF LAND AND BUILDINGS, BONNYVILLE
M.D. AND THE WEST HALF OF THE COUNTY OF RED DEER, 1964.

Value of Land and Buildings Dollars	Bonnyville M.D.	W. Red Deer County
	Percent	
1,000 - 9,999	27	1
10,000 - 19,999	41	10
20,000 - 29,999	21	12
30,000 - 39,999	8	19
40,000 - 49,999	2	15
50,000 - 59,999	1	7
60,000 - 69,999	0	6
70,000 - 79,999	0	8
80,000 - 89,999	0	5
90,000 - 99,999	0	4
100,000 - Over	0	13
Total	100	100
	<u>Bonnyville</u>	<u>Red Deer</u>
Number	131	135
Minimum	1,000	9,000
Maximum	60,000	230,000
Mean	16,035	55,678
Mode	14,711	40,727
St. Dev.	9,871	38,924

both areas. High investments in land and buildings go with high levels of living and high net incomes. The investment in land and buildings generates a large investment return and also increases the return to the labour input.

Investment in Farm Machinery

Only one percent of the farms in Bonnyville had investments as high as \$20,000 in farm machinery; 19 percent of the farms in Red Deer had investments of over \$20,000 in farm machinery (Table 12). The correlations indicated that investment in farm machinery was an important variable in determining the level of living in Bonnyville. In fact, it was only surpassed in importance by total improved acres. It is to a consideration of the latter variable that one must turn in furthering the discussion of investment in farm machinery.

Total Improved Acres

The mean of improved acres was greater in Red Deer, but the mode was greater in Bonnyville (Table 13). The variation in number of improved acres was less for farms in Bonnyville than in Red Deer. Since the number of improved acres varied less in Bonnyville, a more equal distribution of farm machinery to improved acres should have resulted; but the variation in investment in farm machinery was greater in Bonnyville than in Red Deer. The greater variation in Bonnyville indicated that the transition from exploitive to livestock farming was not completed in 1964. The lower value of machinery per improved acre in Bonnyville reflected the smaller investment needed for a grain enterprise and was partly due to the higher proportion of older machines in Bonnyville.

TABLE 12

DISTRIBUTION OF FARMS SURVEYED BY INVESTMENT IN FARM MACHINERY,
BONNYVILLE M. D. AND WEST HALF OF THE COUNTY OF RED DEER, 1964.

Investment in Farm Machinery Dollars		Bonnyville M.D.	W. Red Deer County
		Percent	
1,000	- 4,999	40	20
5,000	- 9,999	38	29
10,000	- 14,999	15	18
15,000	- 19,999	6	14
20,000	- 24,999	1	4
25,000	- 29,999	--	4
30,000	- 34,999	--	4
35,000	- 39,999	--	2
40,000	- 44,999	--	4
50,000	- 54,999	--	1
Total		100	100
		<u>Bonnyville</u>	<u>Red Deer</u>
Number		131	135
Minimum		1,100	1,750
Maximum		20,000	53,340
Mean		6,776	13,515
Mode		2,503	5,580
St. Dev.		4,357	10,579

TABLE 13

DISTRIBUTION OF FARMS SURVEYED BY TOTAL IMPROVED ACRES, BONNYVILLE
M. D. AND THE WEST HALF OF THE COUNTY OF RED DEER, 1964.

Total Improved Acres	Bonnyville M.D. W. Red Deer County	
	Percent	
0 - 9	10	4
100 - 199	23	22
200 - 299	35	22
300 - 399	19	16
400 - 499	6	12
500 - 599	5	9
600 - 699	1	4
700 - 799	1	4
800 - 899	--	5
900 - 999	--	1
1,000 - 1,100	--	1
Total	100	100
	<u>Bonnyville</u>	<u>Red Deer</u>
Number	131	135
Minimum	0	45
Maximum	772	1,080
Mean	255	357
Mode	248	342
St. Dev.	133	225

Some low income farmers in Red Deer appeared to have a relatively high investment in machinery. However, it was a fairly common procedure of the older farmers to lease out their land, retaining only the home quarter. That procedure resulted in several small farms with an investment in farm machinery capable of farming much larger units of land. In Bonnyville no similar arrangements were encountered.

Total Acres

Red Deer had a greater range in farm size than did Bonnyville (Table 14). The modal class for farm size was similar in each community. There were some very large farms in the Red Deer area. These farms were larger both as measured by improved acres and by income. Red Deer farms having large total acreages had large incomes, although some farms with small acreages had good hog enterprises which provided their operators with large incomes.

Total acreages were not significant at the 5 percent level in explaining the level of living in Bonnyville but were significant at the 5 percent level in explaining net farm income. The difference in explanatory power can be attributed to the fact that only 63 percent of the land in Bonnyville was improved compared to 77 percent in Red Deer.

Investment in Livestock

Farms in the Red Deer community had higher investment in livestock per farm than farms in the Bonnyville community (Table 15). Ten percent of the farms in each community had no livestock. There was virtually no specialization in livestock in Bonnyville apart from 22 percent of the farms which had investment greater than \$6,000 in livestock. Of all the variables selected for the correlation analysis, investment

TABLE 14

DISTRIBUTION OF FARMS SURVEYED BY TOTAL ACRES, BONNYVILLE M.D.
AND WEST HALF OF THE COUNTY OF RED DEER, 1964.

Total Acres	Bonnyville M.D. W. Red Deer County	
	Percent	
0 - 159	5	1
160 - 319	22	28
320 - 479	38	30
480 - 639	21	18
640 - 799	9	10
800 - 959	3	7
960 - 1,019	2	2
1,020 - 1,179	--	2
1,180 - 1,339	--	--
1,340 - 1,499	--	1
1,500 - 1,659	--	1
Total	100	100
	<u>Bonnyville</u>	<u>Red Deer</u>
Number	131	135
Minimum	132	158
Maximum	960	1,560
Mean	406	461
Modal Class	320 - 479	320 - 479
St. Dev.	187	272

TABLE 15

DISTRIBUTION OF FARMS SURVEYED IN INVESTMENT IN LIVESTOCK, BONNYVILLE
M. D. AND WEST HALF OF THE COUNTY OF RED DEER, 1964.

Investment in Livestock Dollars	Bonnyville M.D. Percent	W.Red Deer County Percent
0 - 999	9	10
1,000 - 1,999	14	7
2,000 - 3,999	29	17
4,000 - 5,999	26	15
6,000 - 7,999	14	13
8,000 - 9,999	5	3
10,000 - 14,999	2	20
15,000 - 19,999	1	10
20,000 - 29,999	0	4
30,000 and over	0	1
Total	100	100
	<u>Bonnyville</u>	<u>Red Deer</u>
Number	131	135
Minimum	0	0
Maximum	15,840	32,575
Mean	4,171	8,108
Modal Class	2,000 - 3,999	10,000 - 14,999
St. Dev.	2,868	6,663

in livestock was the most important variable in explaining net farm income in Bonnyville. The farmers who had investments of over \$6,000 in livestock were the same farmers who had the highest net farm incomes. Therefore, the farms which were in the vanguard of adopting livestock enterprises were also the most successful from the point of view of net farm income. Farm incomes can be expected to rise in Bonnyville as the shift to livestock farming occurs. Farmers with large incomes tended to specialize in one livestock enterprise, but the low income farmers raised a few of each class of animals. The lack of emphasis on a livestock farm enterprise indicated that too many farms were based on a pure grain growing economy--the Bonnyville farm economy of the 1930's.

Investment in livestock was significant at 1 percent in Red Deer in explaining the level of living but was not significant in explaining net farm income. There was relatively little variation in the livestock investment on Red Deer farms; consequently, the small variation that did occur could not explain differences in income or levels of livings. This does not imply that livestock are unimportant. Indeed the high investment in livestock may be taken as indicating their importance, especially with a complementary relationship between livestock and grain enterprises.

Operator's Debt

The average farm operator's debt was twice as great in Red Deer as it was in Bonnyville. There was no relationship between debt and level of living or net farm income in Bonnyville. Debt was related with the level of living in Red Deer; much of the debt had been incurred in the building of houses and purchase of consumer durables. Debts secured by real estate were owed mainly by the younger farmers without respect to farm size.

Gross and Family Income

Total gross income was the sum of gross sales of all livestock, livestock products, and grain in the calendar year 1964. Net farm family income referred to the total of all incomes reported by family members 15 years of age and over during 1964. Married children who lived with their parents were not considered to be part of the same household.

Gross and net family incomes varied considerably between the two communities (Tables 16, 17). Bonnyville occupied its familiar position of the disadvantaged area. Family incomes and gross incomes were more closely related to the level of living in Bonnyville community than in Red Deer because non-farm incomes were more important in Bonnyville. The low correlation with the level of living in Red Deer implies that most families enjoy the level of living of the high income families--poverty was absent. In Bonnyville the high correlations of the income variables with the level of living indicated that the transition to higher levels of living was still incomplete in 1964.

Stepwise Regression Analysis

Bonnyville Level of Living Index

The discussion of the Bonnyville land settlement phase established that farm consolidation was taking place in 1961 by evolution and that the increases in feed grain production further established the trend towards a livestock based farm economy. The simple correlation analysis indicated that the farms in Bonnyville which had the higher percentage of improved acres and were based on a livestock enterprise were the same farms which had the highest levels of living and net farm incomes.

TABLE 16

DISTRIBUTION OF FARMS SURVEYED BY TOTAL GROSS INCOME, BONNYVILLE
M. D. AND WEST HALF OF THE COUNTY OF RED DEER, 1964.

Total Gross Income Dollars	Bonnyville M.D. Percent	W. Red Deer County Percent
0 - 999	8	1
1,000 - 4,999	64	21
5,000 - 9,999	24	35
10,000 - 14,999	3	18
15,000 - 19,999	1	9
20,000 - 24,999	--	8
25,000 - 29,999	--	3
30,000 - 34,999	--	2
35,000 - 39,999	--	1
40,000 and over	--	2
Total	100	100
	<u>Bonnyville</u>	<u>Red Deer</u>
Number	131	135
Minimum	0	0
Maximum	16,462	43,330
Mean	3,909	11,778
Mode	2,852	5,362
St. Dev.	2,756	9,122

TABLE 17

DISTRIBUTION OF FARMS SURVEYED BY TOTAL NET FAMILY INCOMES, BONNYVILLE
M. D. AND WEST HALF OF THE COUNTY OF RED DEER, 1964.

Total Net Family Income Dollars	Bonnyville M.D. Percent	W. Red Deer County Percent
Under 1,000	25	5
1,000 - 1,999	22	9
2,000 - 2,999	24	10
3,000 - 3,999	17	17
4,000 - 4,999	8	15
5,000 - 5,999	2	10
6,000 - 6,999	1	8
7,000 - 7,999	1	4
8,000 - 9,999	0	8
10,000 and over	0	14
Total	100	100
	<u>Bonnyville</u>	<u>Red Deer</u>
Number	131	135
Minimum	-530	0
Maximum	7,333	18,038
Mean	2,143	5,533
Mode	988	2,946
St. Dev.	1,498	3,812

The following stepwise regression equation explains 41 percent of the variation in the level of living. (The standard errors of the coefficients are given in the brackets below for all equations.)

$$Y_7 = 6.1784 + .000208X_8 + .000437X_{15} + .24707X_5 + .0012126X_6 - .0000935X_{12}$$

$$(.00006280) (.0001607) (.0638974) (.00002981) (.00004408)$$

The dependent variable is the level of living. The variables X_8 and X_6 represent investment in farm machinery and investment in land and buildings, respectively, and emphasize the importance of farm size based on a value criteria. Variable X_{15} , net family income, further points up the degree of disadvantage experienced by the community and indicates the real source of earnings--non-farm earnings, of which transfer payments constituted the largest part. The importance of net family income with respect to the level of living indicated the importance of off-farm earnings to the operator and the financial dependence of the community in general on transfer payments.

The debt variable X_{12} , although not significant at the 5 percent level in the simple correlation, reflected the low earning base capacity of the farm community. It was considerably more difficult to repay debt from farming in Bonnyville than from farming in Red Deer.

Finally the education variable X_5 , established that the better educated wives in Bonnyville had also the higher levels of living. In the conclusion to the survey of literature it was noted that Johnson and Menzies considered education vital to agricultural adjustment, and that Denison concluded that education was the main factor contributing to economic growth in the U.S. between 1928 and 1957. Education of the operator's wife was the only variable to appear in each of the Bonnyville regression equations.

Bonnyville Net Farm Income

The following Bonnyville net farm income regression equation explains 27 percent of the variation in net farm income. The dependent variable is net farm income.

$$Y_{14} = .000319 + .1885X_{11} + .00221X_2 + .00523X_5$$

$$(.03273) \quad (7.6799) \quad (25.6334)$$

The causal relation between wife's education X_5 and net farm income is not obvious. Education may be more important in insuring that the people who leave the farm community can secure adequate employment than it is in providing income for the farmer's wife who possesses it.

Variable X_2 represented years of farm experience and in the simple correlation analysis was not significant at 5 percent level. In fact, years of experience and net farm income were negatively correlated in Red Deer. In Bonnyville, however, years of experience could be indicative of years of capital accumulation. Therefore, the older operators may have had a larger owned capital investment which could have resulted in higher incomes.

Finally, the importance of livestock X_{11} in the net farm income equation verified the theme of this thesis--farm enterprises which were based on a livestock economy were the most profitable enterprises in the Bonnyville farm community. To conclude the analysis of the Bonnyville area it is clear that the affluent operators in the vanguard of change in 1964 had the best educated wives, the greatest percentage of improved acres, and the least amount of debt--these farms were based on livestock enterprises.

Red Deer Level of Living Index

The Red Deer farm community was a dynamic farm community and was based on intensive land use. The following stepwise regression equation explains 32 percent of the variation in the level of living.

$$Y_7 = 9.8160 + .000137X_8 + .2539X_5 + .2811X_4$$

$$(.00002611) (.067839) (.126998)$$

High levels of living were associated with high machinery investment X_8 . Investment in machinery was important in explaining levels of living but not in explaining net farm income.

The importance of education (X_5 , X_4) in the above equation corroborate these earlier findings and once again establish that the best educated members of the farm community were also the most affluent.

Red Deer - Net Farm Income

The stepwise regression equation for Red Deer explains 42 percent of the variation in net farm income and was as follows:

$$Y_{14} = 1033.3 + .15218X_8 + .02574X_6$$

$$(.029313) (.007942)$$

High farm income was associated with investment in farm machinery X_8 and investment in land and buildings X_6 . The failure of the education of the operator and his wife to explain net farm income indicates that all had attained the necessary degree of literacy.

Land was expensive in the Red Deer farm community and, therefore, had to be utilized. The fact that 12 percent of the farm operators who had net farm incomes in excess of \$10,000 indicated the profitability of farming in that progressive community.

V. SUMMARY AND CONCLUSION

The Bonnyville and Red Deer farming areas discussed in this thesis provide many contrasts. Red Deer farmers enjoyed comparatively high incomes and their incomes have been rising over the last thirty years. Gross sales of livestock, livestock products, and grain increased from \$1,090 in 1936 to \$11,778 in 1964. Only ten percent of the Red Deer farms had a capital value of less than \$24,950 in 1964 and only 11 percent of the farms had gross sales of less than \$2,500 in the same year. The increase in gross sales from 1936 to 1964 was accompanied by increases in the per-acre land values that reflected the productivity of the land under an appropriate farm organization--livestock farming.

The average farm in the Bonnyville area in 1936 had gross sales of only \$400, less than one-half the gross sales for Red Deer. The absolute disadvantage suffered by the Bonnyville area has increased over the last 30 years. Gross sales in Bonnyville were \$690 less than gross sales in Red Deer in 1936. In 1964 the difference had jumped to \$8,269. The meagre resource base in Bonnyville in 1936 could generate only meagre incomes. The passage of time has not narrowed the gap in the resource base of the average farm. Indeed the relative rate of growth in Bonnyville's gross sales has been lower than in Red Deer--8.8 in Bonnyville compared with 10.8 in Red Deer. The combination of the meagre resource base and the relatively slow growth rate in Bonnyville have left their mark clearly upon the area. Twenty-one percent

of the farms were low income farms in Bonnyville compared with only four percent in Red Deer in 1964. Moreover use of the A.R.D.A. definition undoubtedly understates the degree of poverty in the Bonnyville area. A larger percentage of farmers in Bonnyville engage in off-farm employment, employment designed by the local municipality to help the low-income farmer to meet his taxes and other debts.

The poverty in Bonnyville has struck farmers in all age brackets whereas the low-income farmers in Red Deer were the older farmers with few debts, grown-up families, and relatively little need for more consumer or producer goods. The affluence of the Red Deer area was reflected in the level of living they enjoyed in 1964. The very high levels of livings were found only in Red Deer and the very low levels of livings were found only in Bonnyville. Since the two communities are found in the same province and look to the same urban centres, radio and television stations, and publications in forming their notions about acceptable living standards, the standard is probably the same for both communities.

The poverty of the Bonnyville farm community would be even greater if only the local resources were available to provide incomes. Nearly half the net family income in 1964 came from transfer payments in Bonnyville. The Bonnyville community is caught in a trap and can be extricated only with the help of the larger community. Short term capital will be needed to aid the shift to livestock.

The average size of farms has been increasing; farmers have been attempting to consolidate and expand their farm units. The average number of improved acres per farm in Bonnyville was three-quarters the

number for Red Deer in 1964; but the gross sales per farm in Bonnyville were less than one-third of the gross sales of the Red Deer farm. Efforts by the Bonnyville farmers to increase their farm size have been nearly as great as the efforts of the Red Deer farmers, but the low quality of the soil and their failure to shift more fully to a livestock-based farm economy have caused their efforts to be spent with little reward. The efforts of the Bonnyville farmers seem all the more valiant when one considers that their low earning power has undoubtedly reduced the choices of other occupations open to them and their families.

While adjustments have been taking place in Bonnyville, they are far from over. Land consolidation must take place more rapidly and the country to town migration must continue to change also--livestock must be given greater importance. The evidence for this latter assertion is clear: The investment in livestock explained more of the variation in Bonnyville's net farm incomes than was explained by any of the other selected variables.

Bonnyville farms have limited resources and a high incidence of poverty. Red Deer farms have large capital investments and little poverty. The relationship between lack of capital and poverty as indicated by low farm incomes and levels of living is obvious. Bonnyville farmers have little capital to work with so their return to labour is not great; moreover their return to capital is small since they command such a small quantity of capital. Red Deer farmers on the other hand have a high value of marginal product of labour and claim a return on their substantial investments in land, livestock and machinery. These evident and marked differences account for the sharp contrast between the Municipal District of Bonnyville and the west half of the County of Red Deer.

APPENDIX I

The farm survey taken in 1965 was carried out in Bonnyville M.D. and the west half of the County of Red Deer. The method used combined a probability and a non-probability technique in selecting the basic units. In accomplishing this concept of sampling the following format was used:

(1) Schedule "C" was taken for each farm in each region, except Township 62, Range 6, West of the 4th in Bonnyville and Township 37, Range 3, West of the 5th in Red Deer. These townships were excluded as a preliminary survey was made in 1964.

(2) Schedule "D" was taken for 20 percent of the farms covered by Schedule "C". In order to secure random selection for Schedule "D" it was essential to follow a predetermined procedure. The following principles were adopted.

(a) Each township or fraction if part was outside the selected areas were surveyed separately.

(b) A number from 1-5 was chosen at random (number drawn from hat) for each township. The number drawn determined the first for which Schedule "D" was taken. Every fifth farm from that selected number was taken until the township was completed. For example, if number 2 was chosen the following numbers 7, 12, 17, etc. were applicable to Schedule "D".

(c) Counting began at the northwest corner of the township, working south and east in a serpentine fashion with southward movement

taking precedence over eastward movement.

(d) If the township was divided by a natural barrier, the north and west portions were taken first depending on the orientation of the barrier.

(e) Where farms were located directly across the road from each other, north took precedence over south on east-west roads; on north-south roads, west took precedence over east.

(f) No alternatives were taken because of refusals, inability to contact, or other reasons.

Schedule C

CONFIDENTIAL

Q. No. _____

Farm Income and Population Study
 Department of Agricultural Economics
 University of Alberta
 Edmonton

 Name of Operator _____ Address _____

 Interviewer _____ Date _____

Legal Description of Farm (List all areas operated beginning with home quarters):

Legal Description					Who operated it in*		1965	
Q(s)	S	T	R	W of	1951	1961	Tenure**	Acres
a. _____								

* Give acreage if less than amount in last column Total

** (1) if owned, (2) rented or leased, (3) managed for others

Present status and address of former operators listed above

Name	Year Left	Present Status	Last Known Address
(1)			
(2)			
(3)			

Interviewer's comments:

Schedule D

CONFIDENTIAL

Farm Income and Population Study

Q. No. _____

Department of Agricultural Economics
University of Alberta
Edmonton

1. When did you first become a farm operator? _____
(year)
2. How long have you been a farm operator? _____
(year)
3. Were you raised on a farm? _____
4. What is the ethnic or national origin of your father? _____
mother? _____

5. Are you a member of a

Type of Organization Name of Organization Position* Activity**

- A. Church _____
- B. Political Party _____
- C. Farm Organization . _____
- D. Cooperative (patron) _____

* (1) member only, (2) committee member, (3) officer

** (1) regularly, (2) occasionally, (3) seldom attend meetings (or
patronize co-op)

6. In what year were you born? _____

If reluctant to answer, how old were you in 1961:

Under 25____, 25-29____, 30-34____, 35-39____, 40-44____,
45-49____, 50-54____, 55-59____, 60-64____, 65 or over_____.

7. How many children do you have? _____

Please list in order of age:

Name	Sex	Year Born	Years of School	Occupation or status*	Place of residence
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

*if deceased, age at death.

8. What was the last grade you completed in school? _____ Univ? _____
9. What was the last grade your wife completed in school? _____ Univ? _____
10. What additional training have you had?

A. Operator	Type of Training	Years Comp.
-------------	------------------	----------------

(1) Apprentice or practical		
--------------------------------	--	--

(2) Vocational		
----------------	--	--

(3) Other		
-----------	--	--

B. Your wife

(1) Apprentice or practical		
--------------------------------	--	--

(2) Vocational		
----------------	--	--

(3) Other		
-----------	--	--

11. Were you employed off your farm any time during 1962-64? _____

A. (If so),

(1) type of employment or business	(2) type of work done
------------------------------------	-----------------------

(3) average days per year	(4) average hours per day worked
---------------------------	-------------------------------------

B. (If not),

(1) did you want off farm work? _____

(If he did),

(a) part time or full time	(b) did you actively seek work?
----------------------------	---------------------------------

(c) explain how _____

(2) do you know of any off farm opportunities in this community? _____

(If not),

(a) how far would a person have to go to find part-time off
farm employment? _____

(b) how far would a person have to go to find full-time off
farm employment? _____

12. Was your wife employed off your farm any time during 1962-64? _____
- A. (If so),
- (1) type of employment or business (2) type of work done
- (3) average days per year (4) average hours per day worked
- B. (If not),
- (1) did she want off farm work? _____
- (If she did),
- (a) part time or full time? (b) did she actively seek work?
- (c) explain how _____
13. If you wanted off farm work where would you go to get information on job opportunities? _____
14. Would you be willing to leave the farm if you could get a good full time job? _____
- (If yes),
- (1) How much income would be required to get you to leave? _____
- (2) Would you be willing to leave the community for such a job? _____
- (3) Would you need financial assistance to move? _____
- (If so), to what extent? _____
15. If you had a free choice, what kind of work (including farming) would you choose? _____
- A. Why? _____
- B. (If non-farm), what additional training do you think you would need for such work? _____
- C. (If training needed), would you need financial assistance to complete such training? _____
16. Do you feel that your farm returns (on the average) an income sufficient to support your family adequately? _____
- (If not), is it because of _____
- (1) not enough land? (2) not enough capital?
- (3) not enough labour? (4) other reasons (specify)

17. What is the age and size of the house you live in?

- | | |
|--------------------|-------------------------|
| A. age | C. type of construction |
| B. number of rooms | D. general condition |

18. Do you have in your house

- | | |
|-------------------------|---|
| A. electricity | H. television |
| B. telephone (how many) | I. refrigerator |
| C. running water | J. deep-freeze |
| D. indoor bath | K. power-washer |
| E. hot-water heater | L. magazine subscriptions (number) |
| F. central heating | M. newspaper (daily or weekly) |
| G. radio (number) | N. books (10 or more, other than texts) |

19. Did you have on your farm on May 1, 1965

<u>Description (if needed)</u>	<u>Number</u>	<u>Value</u>
A. automobile	F. threshing machine	
B. truck	G. pick up baler	
C. tractor	H. forage crop harvester	
D. grain combine	I. electric motors (1/3 h.p. or over)	
E. swather	J. other machinery and equipment	

20. How were you using your land in 1951, 1961 and 1965?

- A. crop land sown or to be sown for harvest (include area sown for hay, silage, and seed)
- B. Improved land for pasture or grazing (exclude hay, silage, and seed)
- C. Summer fallow
- D. Other improved land (barnyards, lanes, home gardens, idle land, etc.)
- E. Total improved acres (a, b, c, and d)
- F. Woodland (woodlots, bush, windbreaks, cut-over land, etc.)

G. Other unimproved land (unimproved hay land, native pasture, sloughs, etc.)

H. Total acres operated

21. What is your estimate of the present market value of the land and buildings on this holding? _____

22. Did you have any livestock on this farm on May 1, 1965? _____

	<u>Number</u>	<u>Value</u>
A. Cattle and calves? _____	XXXXXX	XXXXX

(1) calves under 1 year	_____	
-------------------------	-------	--

(2) steers, 1 yr. and over		
----------------------------	--	--

(3) bulls, 1 yr. and over		
---------------------------	--	--

(4) heifers, 1 yr. and under 2		
--------------------------------	--	--

(5) cows & heifers, 2 yrs. & over (for beef)		
--	--	--

(6) cows & heifers, 2 yrs. & over (for milk)		
--	--	--

Total cows and calves

	<u>Number</u>	<u>Value</u>
B. Pigs and hogs? _____	XXXXXX	XXXXX

(1) pigs, under 6 mos.		
------------------------	--	--

(2) all other		
---------------	--	--

Total pigs and hogs

C. Horses and ponies

D. Goats and sheep

E. Poultry? _____

(1) chicks, under 2 mos.	(4) turkeys
--------------------------	-------------

(2) hens & pullets (for laying)	(5) geese and ducks
---------------------------------	---------------------

(3) all other chickens	
------------------------	--

Total poultry

23. Did you have any debt on May 1, 1965? _____

(if yes),

Type or purpose	Source(s)	Term	Year Borrowed	Amount Borrowed	Amount Outstanding
(1) Land	_____				
(2) Buildings		(5) Personal			
(3) Machinery		(6) Other			
(4) Farm operation					

24. What were your income and expenses in 1964? _____

Item	Quantity Sold	Cash Sales Or Value

A. Crops

- | | |
|------------|-----------------|
| (1) wheat | (3) oats |
| (2) barley | (4) other crops |

B. Livestock and Livestock Products

- | | |
|-----------------------|--------------------------------|
| (1) cattle and calves | (4) eggs |
| (2) pigs and hogs | (5) milk and cream |
| (3) poultry | (6) other livestock & products |

C. Supplementary payments (deficiency payments, crop insurance, co-op dividend, etc.)

TOTAL CASH INCOME

D. Income in kind

TOTAL GROSS INCOME FROM FARMING

E. Operating expenses (including depreciation).

- (1) fertilizer purchased

F. Wage and salary income (operator)

G. Wage and salary income (other family members)

H. Rental income (including royalties)

I. Net income from other business

J. Pensions, family allowances, and other unearned incomes

K. Other income

TOTAL NET FAMILY INCOME

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